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ABSTRACT

The experience of eight prominent Canadian business organizations was examined in terms of how basic skills deficits are identified in their work force, the impact of those deficiencies on organizational competitiveness, and why corporate programs are developed in response to the issue. Some of the key findings were as follows: (1) employee training is an important part of business competitiveness, but in a world of tight resources, there is little evidence of organizations' commitment to basic skills development; (2) organizations that have high quality management systems appear to respond very positively when problems with basic skills deficiencies in the workplace are identified; (3) changes in technology and operating methods place new demands on the skills of employees, sometimes leading to the development of remedial programs; (4) in a unionized environment, employee training is not a problem because it is recognized that there are benefits to all parties; (5) organizations that are downsizing may see the extent of the basic skills problem increase as younger, better educated workers are laid off and the proportion of skilled to unskilled jobs increases; (6) rapidly growing organizations can ensure that they do not experience basic skills problems by using rigorous recruitment and selection processes; and (7) there has been too little experience in employee basic skills training to identify a set of "best practices," but there is some evidence that employees are more likely to participate in programs if training occurs during normal working hours. The study concluded that basic skills deficiencies in the workplace have to affect corporate interests or they will not be addressed; however, as more organizations undergo technical change, there will be increased attention paid to the problem. (The report includes case studies for the eight organizations that were the subject of the research.) (KC)

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ED355339

The Conference Board of Canada

BASIC SKILLS - BASIC BUSINESS

Submitted to
The National Literacy Secretariat

by
The Conference Board of Canada
October 23, 1992

U.S. DEPARTMENT OF EDUCATION
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EXECUTIVE SUMMARY

There is substantial evidence that as many as one-third of Canadian workers experience some degree of difficulty applying basic reading, writing and math skills in the workplace. The direct cost of these deficiencies has been estimated in the billions of dollars, yet less than 15 per cent of employers offer some form of basic skills training. The purpose of this study is to provide some insight as to why the Canadian business community has not more aggressively addressed the issue.

This study reviews the experience of eight prominent organizations in terms of how basic skills deficits are identified in the first instance, the impact of these deficiencies on organizational competitiveness, and why corporate programs are developed in response to the issue. Notwithstanding the differences in terms of size and industry, their experience is remarkably consistent and offers some indication as to the conditions necessary for this issue to be given a higher priority on the business agenda.

Key Findings

Employee training is an important part of business competitiveness, but in a world of declining profit margins and tight resources, what priority is attached to basic skills development? There is only limited evidence that organizations are fully committed to the issue.

Organizations which have implemented management systems that focus on quality appear to respond very positively when problems with basic skills deficiencies in the workplace are identified. There is evidence that the trend toward such systems is increasing and it is likely that more basic skills programs will be developed as a result.

Changes in technology and operating methods places new demands on the skills of employees. In many instances, organizations first see the effects of basic skills deficiencies in this context and develop remedial programs out of necessity. However, this situation need not apply in all cases.

In a unionized environment, employee training is a relatively uncontentious subject because it is recognized that there are benefits to all parties. Many of the study participants see their involvement with basic skills programs as an opportunity to develop a more positive relationship with employees and unions.

Organizations which are downsizing may see the extent of the basic skills problem increase as younger, better educated workers are laid-off and the proportion of skilled to unskilled jobs increases. However, organizations which are growing

rapidly can ensure that they do not experience a problem by using rigorous recruitment and selection processes which screen for basic skills.

It is premature to identify a set of "best practices" which will ensure the success of a basic skills program. There are too few programs which have been in place for sufficient time, and few have been subject to any formal evaluation. However, there is some evidence that employees are more likely to participate in programs if training occurs during normal working hours.

Conclusions

Basic skills deficiencies in the workplace have to affect corporate interests or they will not be addressed as an issue. As more organizations undergo fundamental changes in terms of the technology applied, work processes, and management systems, there will be increased attention paid to the problem. Organizations which have gone through these processes, are focused on creating a sustainable competitive advantage by improving their human resources.

INTRODUCTION

There is evidence that a large number of Canadian adults lack the basic skills[1] necessary to function effectively in the workplace, and further evidence that employers are both aware of the issue and the negative consequences for business. However, Canadian employers are not responding with corporate programs at a level which is consistent with the perceived seriousness of the problem.

The purpose of this study is to provide some insight as to why business has not more aggressively addressed the issue of basic skills deficits in the workplace. The specific objectives are to determine: how organizations identify basic skills deficits; the extent of the impact on organizational competitiveness; and, why some organizations are responding to the issue. By identifying the "triggers" which cause organizations to develop basic skills programs, policy-makers may be better able to focus the attention of the business community on the issue.

Eight prominent organizations, operating in Alberta, Saskatchewan, Ontario and Quebec, participated in the study. These range in size from 160 to 4,400 employees, and include companies in the oil and gas, agricultural, manufacturing, food processing, mining and service industries.

The Extent of the Basic Skills Problem in Canada

The full extent of the basic skills problem in Canada has been substantially documented. In 1987, The Southam Literacy Report revealed that: "Five million Canadians cannot read, write or handle numbers well enough to meet the literacy demands of today's society"; and in 1991, Statistics Canada reported that the reading skills of nearly 3 million adults: "...are too limited to allow them to deal with the majority of written material encountered in everyday life".[2]

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[1] For purposes of this study, basic skills are defined as: the ability to read, write and perform basic math at a level which enables an individual to function independently in the community, including carrying out work responsibilities and undertaking operational training in a satisfactory manner. This definition is comparable to that of "functional literacy" as it is used by literacy specialists and educators.

[2] "Survey of Literacy Skills Used in Daily Activities", Statistics Canada, 1992

Perhaps of greater concern, basic skills deficiencies are not uncommon among high school graduates. Statistics Canada has found that 30 per cent of Canadian adults who have completed their secondary education have difficulty reading and another 36 per cent in this same group, cannot perform simple sequences of numerical operations. This observation implies that organizations cannot rely solely on prerequisite academic qualifications as a means for ensuring adequate basic skills in the workforce. Indeed, a number of employers simply do not believe that Grade 12 is sufficient evidence of the ability to read, write and perform basic math.[3]

There is also recent evidence reported by The Economic Council of Canada that: "...the new jobs being created in Canada tend to require a higher level of basic skills in literacy and numeracy, and better problem-solving skills, than the jobs that were being created 10 or 20 years ago".[4] This finding is reinforced by the Corporate Council on Education, a program of the Conference Board's National Business and Education Centre, which has developed an employability skills profile that identifies the critical skills required of the Canadian workforce in todays business environment. This profile includes higher order communication and problem-solving skills which are considered: "...the basic foundation to get, keep and progress on a job and to achieve the best results".[5]

Notwithstanding these disturbing results, a close analysis of the Statistics Canada survey and projected demand for jobs requiring various literacy skill levels does indicate that there is reasonable balance between the aggregate supply of, and demand for literacy skills in the Canadian economy as a whole.[6] However, it is unlikely that this symmetry applies at the level of the firm and individual organizations will probably experience differential effects.

Given the extent of the basic skills problem and increasing employer demands for higher order skills, it would be expected that Canadian employers are both adversely affected by basic skills deficiencies and concerned about future trends. In 1990, The

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[3] "The Impact of Employee Illiteracy on Canadian Business", The Conference Board of Canada, Report 58-90-E

[4] "A Lot to Learn: Education and Training in Canada", A Statement by the Economic Council of Canada, 1992

[5] "Employability Skills Profile: What Are Employers Looking For?", The Conference Board of Canada, Report 81-92-E

[6] Boothby D., "Literacy, Schooling and the Labour Market: Results from the Survey of Literacy Skills Used in Daily Activities", unpublished study prepared for The Canadian Employment Research Forum, 1992

Conference Board of Canada surveyed the business community to analyze the impact of employee illiteracy on Canadian organizations.[7]

It was found that 70 per cent of surveyed employers feel that they have a significant problem with functional illiteracy in some part of their organization. Furthermore, 27 to 40 per cent of surveyed employers variously reported that illiteracy: slowed the introduction of new technology, impeded training and the acquisition of new skills, resulted in production process and input errors, and generally lowered productivity.

However, while almost three-quarters of the surveyed employers indicated a problem with illiteracy, only one-quarter had developed a formal management response to deal with the issue. More surprisingly, less than 15 per cent of employers directly provided some form of basic skills training which is the most obvious solution to the problem. This limited response by business to basic skills deficiencies in the workplace is inconsistent with management's stated perception of the magnitude and seriousness of the problem.

Methodology

A detailed analysis of organizations which have addressed the basic skills problem in some manner, provides some insight as to the factors which cause employers to implement programs.

The selection of organizations willing to participate in this project was complicated by a number of factors. As previously indicated, surprisingly few employers currently provide comprehensive basic skills training programs. Furthermore, where programs are in place, most have only recently been implemented and these offer little conclusive evidence with respect to their impact on the organization. In other cases, organizations were hesitant about participating in the study because basic skills are considered a particularly sensitive issue.

In the final analysis, eight organizations were selected on the basis of their different experiences with the basic skills problem. Seven of these employers have identified basic skills as a problem for some of their employees, and six have initiated programs which are at various stages of development. One company is not convinced that a workplace based program is the appropriate response to the issue. The eighth company, because of its management approach and history, has not identified a basic skills problem in the first instance.

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[7] Ibid

KEY FINDINGS

The Issue has an Uncertain Place on the Business Agenda

In an economy characterized by increasing global competition, increasing rates of technological change, and uncertain market conditions business has had to make some fundamental changes. The case participants, like many organizations, are increasingly focused on improving competitiveness through technological superiority in production processes or product innovation, and all have adopted some type of performance enhancing management system.

Employee training is, of course, an important part of competitiveness[8]. However, in a world of declining profit margins and tight resources, it is difficult to assess the true priority placed on basic skills development. Insofar as the case participants spend more on a per capita basis than the average Canadian business[9] they likely place a greater priority on training than many Canadian organizations. However, there is evidence that Canadian business spends considerably less in this area than do the Americans, Europeans and others. The latest OECD annual survey of the Canadian economy indicates that Canadian employers are spending less than half of what is spent on training and education in the U.S. and only an eighth of German and British expenditures in this area.[10]

In terms of priority, Syncrude has demonstrated a substantial commitment to providing basic skills training. The company estimates that over the last three years, 10 per cent of its training budget has been devoted to the basic skills program. This likely reflects the fact that Syncrude is one of the few organizations where the C.E.O. has been personally involved in seeking solutions to the problem. Similarly, the Wheat Pool's experience has been sufficiently positive that senior management would consider continuation of its program if government funding was withdrawn, subject to a more rigorous evaluation of the associated costs and benefits.

In contrast, there is evidence that other issues crowd the business agenda and these may affect the priority attached to basic skills training. At GE, there is an ongoing trade-off between production requirements and taking employees off the line for any type of training. At Inco, the logistics of transporting underground miners to the surface prior to the normal end of shift is both costly and disruptive. This may

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[8] "Business and Labour Leaders Speak Out on Training and Education", Canadian Labour Market and Productivity Centre, 1990

[9] "Training and Development 1991", The Conference Board of Canada, Report 85-92

[10] The Globe and Mail - September 9, 1992

explain, in part, why management is hesitant to commit to participation in the B.E.S.T. program.

In most cases, management tended to see the lack of basic skills as posing a potential rather than an imminent threat to the organization. Overall, basic skills programs represent a very small part of the effort being made to improve organizational effectiveness, and costs are low relative to overall training budgets. Therefore, it is uncertain that support for basic skills training would be maintained if program costs were to increase substantially.

Quality Initiatives are Linked to Basic Skills Development

Seven of the study participants have formally adopted management policies and practices which focus on quality. This focus appears to be an important factor in identifying basic skills deficits as an issue in the first instance. These organizations consider the success of their quality initiatives to be dependent on gaining employee commitment, and this requires that employees are provided with the knowledge and skills necessary to take on more responsibility for the direction of their respective work, as well as greater employee involvement in problem-solving and the sharing of authority.[11]

At Digital's manufacturing facility in Kanata, the issue was first explicitly recognized by means of a quality tool - the continuous improvement team (C.I.T.). One of these teams saw a need for English as a second language training because new immigrants in the workforce were having problems reading assembly process manuals and often ran into problems making product changes on the assembly line. Subsequently, it became apparent that other employees were concerned that they lacked sufficient communications skills to take on more responsibility for activities such as statistical process control (SPC). The Steelworkers' union at Inco also stated that C.I.T.'s in the smelter complex have identified basic skills problems as being a factor affecting process improvements.

Developing a total quality management system requires that management start the quality process by focusing on maximizing employee potential. In the event basic skills deficiencies are affecting employee potential it is considered that these will inevitably impact on quality, therefore management must ensure that the problem is remedied. In this type of management environment, a corporate response to the basic skills problem is more likely to be considered an imperative rather than a

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[11] "Customer Satisfaction Through Quality", The Conference Board of Canada, Report 74-91-E

function of specific costs and benefits. Digital wasted little time in developing programs to address these training needs.

If, in fact, there is a positive relationship between proactive corporate responses to the problem and management systems which focus on quality, it is possible that the number of basic skills programs will increase in future. Only one-third of the quality training initiatives have been in place for more than two years[12], and the focus on basic skills may increase as these quality programs develop.

Tech Change is Linked to Basic Skills Development

Where a workforce has serious basic skills deficiencies, organizations experience problems when they change process technologies. Employees have difficulty learning new functional responsibilities as well as operating and maintaining the new equipment. The cost to the organization can be substantial in terms of lost production.[13]

Two of the case participants made substantial investments in new process technologies which represented a major training challenge for the companies. In both instances, management reports that the lack of basic skills has had some impact on the effectiveness of related functional training. However, management's perception of the organizational impact differs considerably.

Inco's experience indicates that employees who lack basic skills are generally capable of adapting to the new operating environment in the Smelter complex, and the additional training costs incurred are considered to be minimal. On the other hand, management at Weston's thinks that the lack of basic skills has caused some of the problems getting the new plant up to speed and this proved to be a major incentive in its decision to develop a basic skills training program.

The Wheat Pool has also been faced with the impact of technological change in some parts of its operation. Modern, "high-throughput" concrete grain elevators are ten times larger than their wood frame predecessors and construction crews have had to develop entirely new skill sets to cope with the change. Basic skills deficits in this group are a concern as efforts are made to upgrade technical skills and train more people in the new technology.

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[12] Ibid

[13] A very interesting case study is presented by William Wiggenhorn, President of Motorola University in "Motorola U: When Training Becomes an Education", Harvard Business Review, July-Aug 1990

There is a clear relationship between basic skills and the ability to learn new functional skills which require the study of relatively complex written materials. In most cases, the introduction of new process technologies requires that employees be able to read if training programs are to be effective.

To the extent that Canadian producers have not been in the forefront in terms of implementing leading edge manufacturing technologies,[14] one of the primary motivations for addressing basic skills deficiencies in the workforce is not necessarily present in many cases. However, increasing competitive pressures will likely force higher levels of technological change and it is probable that the basic skills problem will necessarily receive greater attention than in the past.

Basic Skills Development Presents an Opportunity to Work with Labour

Many of the study participants consciously view their involvement with providing basic skills training as an opportunity to develop a more positive and cooperative relationship with both employees and unions. Training is an issue which is generally recognized as offering a benefit to all parties, and is therefore not as contentious a subject as most.

GE and the United Electrical Workers are participants in the electrical industry's sectoral skills council, and they have formed a joint training committee to direct the training effort. It is this body which administers the B.E.S.T. program at the Peterborough plant. Management sees this type of approach as being an effective mechanism for identifying training needs, developing training programs and increasing employee involvement in the process.

At Weston's, the labour-management relationship had been typically adversarial in nature. Construction of the new plant and the company's desire to develop a more participative management style required that the parties develop a more cooperative relationship. Senior management's commitment to involving the union in the change process, included working closely with the union in developing the basic skills training program.

Notwithstanding the best efforts of management and labour working in a positive and cooperative manner, these cases also illustrate the difficulties in recruiting employees into basic skills programs. Only about 3 per cent of the employee population can be convinced of the value in upgrading their basic skills when the

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[14] Green C., "Quality Improvement - From Dreams to Reality", Canadian Business Review, Autumn 1992

best available evidence suggests that nearly ten times that number have a basic skills problem.

Downsizing can make Basic Skills Development more Critical

Over the last decade, adverse market conditions have had a substantial effect on this group of employers. Three of the organizations have reduced their workforces by 50 to 75 per cent which represents the loss of nearly 4,000 jobs. Only one firm has enjoyed significant growth and that has been achieved largely through the acquisition of smaller competitors. The rest have generally been able to increase output while controlling the size of the workforce.

There is evidence that a higher proportion of older workers tend to have a problem with basic skills.[15] In the unionized sector, layoffs have generally been based on seniority with the result that some organizations have experienced a relative increase in the number of employees with a basic skills problem. At the same time, changes in operating technologies and work process methods have resulted in a higher ratio of skilled to unskilled jobs which implies an aggregate increase in skill level requirements.

While the case studies suggest that downsizing exacerbates the extent of the basic skills problem, there are few indications that this situation has created particular difficulties for those organizations affected. Over the last decade, Inco's production bargaining unit has been halved and the average age of employees increased as a result. Furthermore, most of the layoffs occurred in unskilled jobs which declined from 25 to 12 per cent of the workforce. Management states that this has probably increased the extent of the basic skills problem in that there are relatively more employees lacking basic skills, and there are now fewer positions in which they can function effectively. However, the perceived impact on organizational effectiveness has not been so severe as to force the company to respond to the issue.

Conversely, a growing organization which establishes basic skills as a condition of employment may effectively eliminate a basic skills problem over time. FedEx has experienced dramatic growth over the last five years and it is unlikely simple coincidence that it is the only participant which does not report a basic skills problem.

A recent Conference Board study reports that 40 per cent of the surveyed employers carry out pre-employment testing to screen applicants for basic skills. Those companies report screening out an average of 15 per cent of job applicants because of

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[15] Ibid

inadequate literacy and numeracy levels which is twice the rate reported with respect to their current workforce.[16]

Of the eight study participants, Syncrude uses a testing instrument which explicitly screens job applicants for basic skills and Weston's intends to take this approach in future. However, while FedEx does not specifically screen for basic skills, it makes every effort to ensure that new employees have the skills, attitudes and behaviors necessary to fit into a quality driven organization and administers a comprehensive recruitment and selection process to that end. Increasingly, the remaining organizations are applying more exhaustive selection techniques which allow the employer to better assess the overall capability of job candidates.

It is Premature to Identify Best Practices

There does not appear to be any one model which represents a "best practices" approach to the issue. There are successful programs involving local educational institutions as well as those relying on consultants. There are programs where organizations provide training mostly on company time and others where all training is outside normal working hours. Until programs are operating for longer periods and these are subject to formal evaluations, it is unrealistic to identify a set of best practices.

The largest single program cost involves the payment of wages for training during normal working hours. Otherwise, program development costs are relatively minor. Syncrude has made the largest investment and estimates that it spends 10 per cent of its training budget on basic skills related training. Program development and operating costs tend to be very low largely because of low enrolments. In most cases total expenditures are on the order of $10 to $30 thousand per year.

In terms of cost sharing, there is no uniform practice in the organizations studied. Digital covers essentially all of the costs of its program including employee time,while Weston's employees participated entirely on their own time. In most cases, the organization covers program development costs and absorb half of the training time involved. It is probable that where cost sharing becomes an issue, operational constraints rather than program costs per se are the cause. However, comments from employees suggest that the incentive to participate in programs is considerably higher when training takes place during normal working hours.

In all cases where programs have been implemented, some form of government funding has been received by the participating organization. There was no indication

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[16] Ibid

that government funding is a major factor in the decision to support basic skills training. However, given the "soft" nature of the accruing benefits and the "hard" costs of delivering a program, government funding likely makes the decision to provide such training more defensible within the organization.

CONCLUSIONS

Basic skills deficiencies in the workplace tend to be addressed as an issue only when corporate interests are directly affected. Increasing competitive pressures have caused the study participants to invest in new production technologies, adopt new work processes and management principles. Changes in the status quo force management to identify resource constraints which may have a negative impact on the achievement of corporate objectives.

In general, the study participants could only provide anecdotal evidence regarding the negative impact on organizational competitiveness due to basic skills deficiencies in the workplace. The clearest statement regarding this aspect of the issue came from Dresser-Rand's manufacturing manager who considers that 90 per cent of scrap and rework at the plant is directly attributable to a lack of numeracy skills.

There has been a positive corporate response to the issue where organizations are concerned about the possible adverse effects of basic skills deficiencies on training, the quality of the workforce overall, and efforts to increase employee involvement. Management recognizes that employees with basic skills deficiencies will be less capable of making a positive contribution and this will limit organizational effectiveness. More importantly, these are organizations which are focused on creating a sustainable competitive advantage by improving their human resources

Boulangeries Weston Quebec Inc.

Interviews

Gaetan Lussier, President
Sophie Fortin, Vice-President Human Resources
Bertrand Senechal, Production Manager
Thuy Nguyen, Maintenance Manager
Real Peloquin, CSD Local Union President
Daniel Beauchemin, Union Shop Steward and Unit Training Coordinator

The Business Environment

This subsidiary of George Weston Limited, serves the Quebec bakery product market. It has operated a production plant and distribution centre employing 600 employees in Longueuil for over thirty years. In the late 1980's this aging, inefficient facility was no longer competitive and new competitors, including some large American companies, were beginning to nibble at its traditional markets in Quebec.

Weston's considered a number of options including closure of the existing plant and relocating to another area. In the final analysis it was decided to construct a new plant in Longueuil and install the latest generation food processing equipment, which became fully operational in August of 1991. The plant is designed to process relatively few product lines at very high volumes, and the new facility has a production rate two to three times that of the old plant and requires less than one-third the workforce.

Given the number of employees expected to be laid-off, the company was able to draw upon financial support from both the provincial and federal governments to facilitate the labour adjustment process. It was recognized by the parties that all employees would require substantial retraining to function in the new plant or to improve their employability in the event of layoff.

The Corporate Response

Senior management saw this situation as an opportunity to make some fundamental changes in the organization, and Weston's has adopted the policies and practices of Total Quality Management (TQM). These initiatives involve devolving greater responsibility to employees on the shop floor, increasing the flexibility of workers through multi-skilling, and focusing on continuous process improvement.

The combined changes in operating technology and work processes have placed considerable strain on employees having to adapt to the new environment. Therefore, Weston's has had to increase its investment in training, and its annual per capita expenditure for this item is now somewhat higher than the average for Canadian manufacturers.

The Employment Relationship

Production workers at Weston are represented by le Syndicat des salaries de la Boulangerie Weston, an affiliate of the Centrale des syndiquats democratiques. The employment relationship with the union had been typically adversarial in nature, but appears to have undergone substantial and fundamental change. There is a genuine sense of partnership in the enterprise being developed.

This result is largely due to the efforts made by management to communicate fully and openly with the union, all aspects of the planned changes to be made at the new facility. One measure of the degree of change in attitude is that the parties managed to successfully renegotiate some components of their collective agreement which still had two years to run before it expired.

The Basic Skills Problem

As part of the labour adjustment process, an assessment of the employees training needs was carried out by an independent authority. To ensure confidentiality, neither the company or union was privy to individual employee results but management was advised that five per cent of the employees tested were illiterate.

The decision was taken to provide literacy training on a voluntary basis, and given the test results it was expected that about 20 employees would be involved. Much to the surprise of the company, 85 employees or nearly 25 per cent of the plant workforce actually enrolled for that training.

Insofar as employees were quite aware that they had to be retrained if they were to have any chance of competing for a job in the new plant, it is possible that this number accurately represents the proportion of employees concerned about their basic skill level.

Impact on Competitiveness

This latest generation equipment requires a much higher degree of technical sophistication on the part of operators and maintenance workers. Employees have had to receive 70 to 85 hours training in the new production technology as well as TQM work processes to ensure that the transition was successful.

The company's first real indication that basic skills deficiencies might have a direct operational impact occurred when the equipment vendor's training proved to be more difficult and time consuming than anticipated. This has prompted management to work closely with the union to ensure that employees are provided the training support necessary to function effectively in their jobs.

The Program Response

The literacy program was developed by the local school authority, with input from all of the parties, and training was provided using company facilities. The curriculum consisted of 36 hours of french, 24 hours of math and 15 hours of basic computer training scheduled over a six week period in the summer of 1990.

Employees were not paid for the training time involved, but the company adjusted production schedules to ensure employees access to the progam. All participating employees successfully completed the basic skills program which, in effect, qualified them for continued technical training.

This program was intended to run only for the period in question, but management does not consider the full extent of the basic skills problem to have been addressed. In cooperation with the union and employees, Weston's is considering the purchase of a computer based, interactive training program with reading, writing and numeracy modules. An agreement with the union has been made to allow employees off-hours access to the necessary facilities.

Summary

Weston's in Quebec has undergone the most substantial and fundamental change in the way it carries on business. The company now operates the most modern processing facility in North America and it has adopted the most current management principles in the effort to achieve maximum efficiency while providing the highest quality to its customers.

Management understands that the skills, attitudes and behaviors of its employees are as essential to the company's success in achieving those objectives as the technology employed. Once the commitment was made to stay in Longueuil, management recognized that it had to ensure that its existing workforce had the necessary skills to function effectively in the new plant.

The participation rate of employees in the basic skills course provides a reliable indication of the extent of basic skills deficiencies in the workforce. Further, given the amount of technical training required to operate the new plant it is clear that the level of basic skills deficits would have had a far more negative impact on getting the plant on-line had remedial training not been provided.

Organization Profile

1991/92 Fiscal Year

Annual Sales	**unavailable**
Total Number of Employees	**600**
Training and Development Budget	**$400 thousand**
Average Per Capita Expenditure	**$666**
Average Annual Training Per Employee (production)	**80 hours**
Basic Skills Program Costs	**unknown**
Per Cent Government Funding	**unknown**

Digital Equipment of Canada Ltd.

Interviews

Dale Reid, Plant Manager
Patrick Fitzmaurice, Manufacturing Operations Manager
Rick Maxwell, Manufacturing Technology Manager
Katherine Payne, Manager Human Resources and Strategic Planning
Pierre Trottier, Training Specialist
Buu Van Huynh, ESL participant
Sherallyn Poll, Quality Information - SPC participant
Bill Moore, Basic Problem Solving Training participant
Jim Courtney, Technical Management Education Program participant

The Business Environment

This company is a wholly owned subsidiary of the $14 billion a year computer maker, Digital Equipment Corporation. Digital is a world-class designer and manufacturer of mini-computers, and its VAX system designed in the mid-1980's, is still considered an industry standard. However, Digital is a relatively late entry in the design of the latest generation microprocessor chips based on a design called reduced instruction set computing (RISC). As a result, the company is under great competitive pressure and is in the process of renewing both its corporate culture and business strategy.

Digital Canada opened its manufacturing and distribution facility in Kanata in 1972. Operations have experienced steady growth over the last 20 years, and now employs approximately 350 production workers in the manufacture of various computers and computing sub-assemblies such as back planes and CPU modules. In some cases the facility has a world-product mandate for the manufacture of these items, and given continued demand for Digital's product, management expects the Kanata plant to experience modest growth in the coming years.

Although the company produces large volumes of standardized components, the production technology has remained relatively constant over the years. The operation's competitiveness has relied largely on incremental improvements in the production process to offset its relatively high labour costs. However, in future Digital may have to give greater consideration to automating the production process if it hopes to remain competitive.

The Corporate Response

For nearly seven years, Digital has been implementing the policies and practices of Total Quality Management (TQM). These practices include the use of cross-functional workteams and an emphasis on continuous process improvement. In that period, the plant has reduced non-conformance spending by 15 to 20 per cent annually which illustrates the savings possible with this type of management approach.

In an environment where the focus is on continuous process improvement, employees are increasingly working in cross-functional teams and having increased levels of responsibility placed on them which requires better communication and problem-solving skills. Furthermore, there is an emphasis on multi-skilling employees to increase manufacturing flexibility which places ever greater demands on the learning capability of workers.

Management recognizes that the success of these quality initiatives, in terms of reduced cycle times and improved productivity, are dependent on the skills and involvement of employees on the shop floor. To ensure that employees have the necessary training, Digital makes a considerable investment in training and development.

The Employment Relationship

Digital employees are not represented by any union. Historically, the company has implemented a number of progressive human resource management initiatives and actively seeks employee participation as an integral part of its TQM program.

Wages and benefits are perceived as being competitive and the company does not experience any problems with respect to the recruitment, selection and retention of fully qualified personnel.

The Basic Skills Problem

Digital does not experience a major problem in terms of basic skills deficiencies among its workforce. The Ottawa area provides a large, relatively well educated recruitment pool and the company provides attractive wages and benefits which allows it some flexibility in the selection process.

Management states that perhaps 1 to 2 per cent of its workforce might be considered illiterate while another 5 to 15 per cent experience some degree of difficulty with complex written materials.

Impact on Competitiveness

In the late 1980's one of the company's continuous improvement teams identified a specific need for English as a second language training because of new immigrants in the workforce. Some of these employees were having problems reading assembly process manuals and they often ran into problems when changing products on the assembly line. Subsequently, it became apparent that other employees were concerned that they lacked sufficient communications skills to take increased responsiblity for activities such as statistical process control and problem-solving.

In a TQM environment, the focus on making continuous improvements to the production process requires that such impediments to organizational effectiveness be eliminated as quickly as possible.

The Program Response

Digital brought in external consultants to evaluate training needs and to design an appropriate ESL course to address the first issue, and a pilot program was initiated in the spring of 1990. Participants were 21 night shift workers, mostly new immigrants, who were provided 100 hours of instruction entirely on company time and at company expense. This program was considered very successful in that there were no dropouts and attendance was 98 per cent.

A second, personalized program was later established to address the needs of a second group of employees. These 13 participants tended to be older and lacked high school education. They took part in a voluntary pre-assessment session and the program was designed based on their level of competency. Again, this program involved 100 hours of classroom training at the company's expense, and was considered very successful in that there were no dropouts.

Other programs have been developed to deal with the functional skills necessary for effective work in this type of quality oriented environment. Employees are provided with specific training in quality information - statistical process control (QiSPC), basic problem solving training (BPST) and technical management education (TMEP).

Management states that within 3 months, participants in the basic skills program exhibited greater self-confidence and increased participation in work team activities. Further, it is clear that employees without the fundamental learning tools would have a serious problem taking advantage of the quality training programs. In the long-run management is confident that these behavioral changes will translate into improved productivity.

Both management and program participants were extremely positive about the basic skills program and considered the fact that it is only one part of a multi-faceted approach to training as being of particular importance in achieving that result.

Summary

To remain competitive in a highly competitive industry, Digital must rely on its human resources to be actively involved in the total quality process. The major problem facing the company is the development of a corporate culture which empowers employees and pushes decision-making to lower levels within the organization.

It is of interest that the issue of basic skills deficiencies was first identified by means of a TQM instrument - the continuous improvement team. Regardless of the merits of TQM as a management process, the focus on the employees role in the organization appears to ensure that employees training needs are addressed.

Organization Profile

1991/92 Fiscal Year

Annual Sales	**not available**
Total Number of Employees	**800**
Training and Development Budget	**not available**
Average Per Capita Expenditure	**not available**
Average Annual Training Per Employee	**not available**
Basic Skills Program Costs	**$105,000**
Per Cent Government Funding	**40 per cent**

Dresser-Rand Canada Inc.

Interviews

John Hanigan, General Manager
Kathy Knoke, Human Resources Manager
Peter Cholmondeley, Manufacturing Manager
Joint Training Committee

The Business Environment

Located in Lethbridge, this company is part of Dresser-Rand's Turbo Products Division, which manufactures centrifugal compressors and gas turbine engines for the gas industry in Canada and abroad. Unlike the oil industry, the gas industry has experienced relative stability and growth over the last decade, therefore Dresser-Rand has enjoyed steady demand for its products and has achieved an enviable record of profitability.

The company's products consist of large scale compressors and industrial turbines which are manufactured to meet rigid customer specifications. Specialized, custom production requiring a highly skilled workforce allows the company to remain competitive in the marketplace notwithstanding relatively high labour costs.

Dresser-Rand's production and product technologies have remained relatively constant and are not expected to change dramatically in the near future. In this type of environment, the creation of a sustainable competitive advantage is dependent on incremental improvements to the production process.

The Corporate Response

The company has fully adopted the principles and practices of a Total Quality Management (TQM) organization including the use of intra-departmental work teams and an emphasis on continuous process improvement. It is recognized that the success of these quality initiatives are dependent on the active involvement of employees.

The manufacture of highly engineered, specialized machined products requires a highly skilled and flexible workforce. The training and development effort is directed at increasing worker flexibility, reducing scrap and rework, and improving cycle

times. Employees are increasingly expected to develop effective communication skills which are necessary in a team based environment, and they are also increasingly being held responsible for ensuring that engineering specifications are satisfied.

Management firmly believes that its continued success depends on developing the highest quality workforce in the industry. In support of this effort, the company's annual per capita training expenditure is expected to nearly double the average spent by most Canadian manufacturers.

The Employment Relationship

Dresser-Rand's production employees are represented by the International Association of Bridge, Structural and Ornamental Iron Workers. Over the years, labour relations have been relatively positive and stable. Wages and benefits are relatively high compared to other local employers, there is relatively little employee turnover, and few employee grievances proceed to arbitration.

The company's TQM initiatives have led to greater cooperation between the parties, particularly with respect to training and development issues. Recent developments with respect to acquiring accreditation of a skilled trades designation in Alberta have provided an opportunity for the parties to work closely in upgrading employee skills.

The Basic Skills Problem

As the company has progressed in its quality training, the extent of the problem with basic skills deficiencies has been more completely realized. Based on the results of the written work associated with the quality training, management estimates that 5 to 8 per cent of the workforce suffer from serious literacy problems, and another 15 per cent may be considered semi-literate.

The extent of the problem and the magnitude of the direct costs associated are considered sufficiently serious that management has designed a comprehensive training curriculum with a solid focus on basic skills training.

The Impact on Competitiveness

Management states that employees have trouble in work meetings with taking minutes, problem-solving, goal setting and planning. The lack of basic skills has also proved to be a problem with vendor training on new operating equipment. As well, employees have been passed over for promotions because of poor communications, numeracy and problem-solving skills.

The manager responsible for manufacturing estimates that 90 per cent of the scrap and rework costs incurred at the plant are a direct result of inadequate numeracy skills. The cost of rework can be extremely high when the items being machined may cost hundreds of thousands of dollars.

The Program Response

Notwithstanding the generally high skill level of the workforce, most employees do not have formal trades certification. The government of Alberta has recently changed the way in which workers can achieve journeyman status. Previously, workers who could demonstrate a minimum, approved "time in the trade" could write the journeyman exam, but now workers will have to go through the formal apprenticeship program. A grace period has been granted whereby workers have up to a year to write the exam.

This situation has generated significant interest on the part of Dresser-Rand's employees in preparing for the exam, and has therefore created an opportunity for the company to upgrade the skills of its workforce. The company, union and Lethbridge Community College have developed a comprehensive, formal training program which will provide a vehicle for providing structured training ranging from basic skills in a production environment through post-journeyman training.

All employees must take a general, Preliminary Training Program in order to carry on with advanced training. The intent is to reintroduce employees to a formal learning environment, and will also provide the opportunity to address basic skills deficiencies. The Journeyman Challenge Training, the Industrial Generalist Training, and Industrial Production Training programs all include courses directed at improving reading, writing, comprehension and numeracy skills.

The Industrial Production Training program is of particular interest. This is not oriented towards gaining trades certification, rather its mandate is to provide general skills and training that are beneficial to those working in an industrial manufacturing setting. This represents one of the few opportunities available to workers anywhere in Canada to receive formal, workplace specific training which should serve to enhance employability and promotability.

The company has paid the costs of developing the program and will pay the costs of tuition and books but employees take courses on their own time. Registrations for the first semester have been extremely encouraging with approximately 150 employees representing 90 per cent of the population participating. Not surprisingly, it has been difficult to maintain that level of interest in the program and only 38 employees have enrolled in the second semester. Nonetheless, this represents a very positive beginning and provides a solid base to work from.

Summary

The company operates in a relatively stable and profitable market niche. Specialized, custom work requiring a highly skilled workforce provides the motivation necessary for Dresser-Rand to address any problems associated with basic skills deficits in the workforce.

In particular, the focus on continuous improvement in the manufacturing process, the need for multi-skilling, and the need to improve the communications skills of workers as the use of project teams increases, require that employees develop higher level skills if the company is to remain competitive. The extent of the basic skills problem is sufficiently great that the company must address the issue.

Insofar as the program developed provides an accessible means to systematically upgrade employee skills, the first necessary step towards addressing the basic skills problem has been taken. The efforts made by the company to actively engage the union in this process should also serve to encourage employee participation.

In the final analysis, the success of this program depends primarily on the motivation of the individual employee. Management's challenge will be to demonstrate a long term commitment to the program and a willingness to support its employees in upgrading their skill levels.

Organization Profile

1991/92 Fiscal Year

Annual Sales	**$75 million**
Total Number of Employees	**170**
Training and Development Budget	**$130 thousand**
Average Per Capita Expenditure	**$764**
Average Annual Training Per Employee (production)	**40 hours**
Basic Skills Program Cost	**$1008**
Per Cent Government Funding	**50 per cent**

Federal Express Canada Ltd.

Interviews

David Bronczek, Vice-President and General Manager
Lisa Elliott, Manager Corporate Communications
Debbie Gerrard, Manager Training

The Business Environment

FedEx is an international express carrier of documents and goods serving the Canadian market. It began operations in Canada when Federal Express Corporation purchased its local licensee, Cansica Inc., in 1987. In essence, FedEx sells two products: the pick-up and delivery of time-sensitive materials and information.

Full domestic service was launched in 1988 and the company now employs 3,200 employees across the country, which represents an eight-fold increase in five years. The company's success in terms of increasing its market share is particularly impressive given the extent of competition in the industry. There are five major, full-service courier companies serving the national and international markets, as well as a number of "niche" companies serving various regional market segments.

In 1990, the U.S. parent company Federal Express Corporation, was presented the Malcolm Baldrige National Quality Award in recognition of its achievements in total quality management. This represents the first time that the award has gone to a service company, which distinction reflects the commitment of resources invested by FedEx in the effort to better serve its customers.

The Canadian subsidiary is driven by the same commitment to quality and every employee is charged with maintaining the company's People-Service-Profit philosophy which has proven so successful for FedEx.

The Corporate Response

As a service industry, the dictum that people are a company's most valuable asset is very keenly felt at FedEx. The company has a reputation for innovation and providing service to the customer which is based on the efforts of its employees.

To ensure that employees have the necessary support, the company spends almost 6 percent of total revenues on employee training which is more than five times the per

capita amount spent on employee training and development by Canadian business on average.

The Employment Relationship

Employees at FedEx are not represented by any union. From its inception, FedEx has demonstrated an uncommon degree of concern for the welfare of its employees. As a rule, the company seeks to hire permanent rather than temporary employees and only uses casual workers over the Christmas period. Further, FedEx has "promote-from-within" and "no-layoff" policies which serve to attract long-term employees.

The company has gone to extensive lengths to ensure that there is complete and open communications with all employees, and maintains an internal grievance process whereby employees have the right to have their individual grievances arbitrated by senior management.

One measure of this positive labour-management relationship is the company's extremely low employee turnover rate. Wages and benefits are fully competitive for the industry, and FedEx does not generally have any problems recruiting for entry level jobs.

The Basic Skills Problem

Management estimates that relatively few of its employees have serious basic skill deficiencies. In the first instance, FedEx has been experiencing dramatic growth over the last six years therefore its workforce is relatively young and well educated.

Furthermore, the company front-end loads its recruitment and selection process to a far greater extent than most companies, in an attempt to ensure that all employees have the attitude and skills necessary to succeed with FedEx.

The Recruitment and Selection Process

The Company requires grade 12 as a prerequisite for all entry level positions and operates three assessment centres across Canada where prospective employees undergo extensive pre-employment testing.

When a job opening occurs, employees from the work unit play an active role in making the final employee selection. This last factor serves to ensure that new employees have the personal attributes necessary to function effectively in the environment within which they will be working.

Once hired, all new employees also undergo a mandatory training program which, in the case of couriers, involves two weeks in-house, classroom training. In addition, they undergo a formal ninty day orientation period whereby they are assigned a "buddy" who is responsible for guiding the employee through corporate policies and procedures as required.

In the unlikely event that an employee with basic skills deficiencies were to progress beyond this stage, the company has the internal capability to provide a full range of training support.

Summary

FedEx is in a highly competitive, people oriented business where every effort is made to hire and retain a highly qualified and highly motivated workforce. In this type of environment, training is essential because it gives employees the confidence to deal effectively with the customer. Further, employees must have the capacity to learn if they are expected to contribute to the continuous improvement process.

The FedEx Training Department provides many formal training modules to all employees, and employee training is one of the key strategies and priorities used to increase employee involvement, effectiveness and productivity. The Company makes every effort to ensure that all employees receive proper training in job performance skills as well as in the quality philosophy and approach needed to enhance those skills.

Unlike many Canadian companies, FedEx has experienced dramatic growth over the last five years. Therefore, given the company's intensive recruitment and selection process and ongoing investment in employee training and development, basic skills do not present a problem for the organization.

Organization Profile

1991/92 Fiscal Year	
Annual Sales	**$200 million**
Total Number of Employees	**3,200**
Training and Development Budger	**$12 million**
Average Per Capita Expenditure	**$3,750**
Average Annual Training Per Employee	**unknown**
Basic Skills Program Costs	**not applicable**
Per Cent Government Funding	**not applicable**

GE Canada Inc. (Peterborough Plant)

Interviews

Greg Smith, Manager of Large Motors and Generators
Ron Osborne, Manager Engineering
Dave Moffat, Manager Organization and Staffing
Barb Gibson, Coordinator Education and Training
Earl Robbins, BEST facilitator (United Electrical Workers)
Rick Bowler, BEST facilitator (United Electrical Workers)
Ann Fleming, BEST facilitator (Communications Workers of Canada)
Tom Davis, Peterborough County Board of Education

The Business Environment

GE in Canada is one of the world's leading designers and manufacturers of industrial motors and drive systems. The Peterborough plant has been producing electrical motors and components for over one hundred years, and now manufactures nuclear fuel products as well.

However, adverse market conditions and increasing global competition have had a devastating effect on this operation. Over the last decade the workforce has declined from over 4,500 workers to under 1,650. In this environment, individual employees are very conscious that there are no longer any meaningful job guarantees.

Although the company's product technology has changed significantly over the years, its production technology has remained relatively constant and is not expected to change very much in the near future. In this type of environment, the creation of a sustainable competitive advantage is dependent on incremental improvements to the production process.

The Corporate Response

Within GE operations worldwide, there has been a shift to more decentralized control, an emphasis on the development of world product mandates by each facility, the weeding out of product lines, and a focus on achieving profitablily.

Given this environment, the company has rationalized production and focused on the reduction of costs. The plant now concentrates on the production of large, custom designed industrial motors which requires greater value added activities. This approach should allow the plant to remain relatively competitive despite high labour costs.

In support of this strategy, management has eliminated layers of management, decentralized control and placed greater responsibility on workers. This involves placing increasing emphasis on cross-training and multi-skilling workers. There are fewer job classifications specified in the collective agreement and increasing use of cross-functional, continuous improvement teams.

Annual productivity improvement targets in the order of 5 to 6 per cent range have been set, but it is recognized by management that these targets are not realistic without a significant increase in training and development. This, despite the fact that the company's annual per capita training expenditure is currently more than 50 per cent higher than the average for Canadian manufacturers generally.

The Employment Relationship

GE workers are represented by the United Electrical Workers and the Communications Workers of Canada, and the labour-management relationship may be characterized as positive and stable, notwithstanding the pressures created by the extent of job losses over the last decade.

The unions have played an important role participating in a number of joint committees concerned with special projects and training. As well, all of the parties are active supporters of the Sectoral Skills Council for the Electronics and Electrical Industry which is concerned with ensuring that the future training needs of the industry are satisfied.

The Basic Skills Problem

Historically, GE in Peterborough offered well-paid and secure long-term employment to unskilled workers, and many of the older employees left school to work at the plant at the earliest opportunity. Given the extent of layoffs which were based on the seniority provisions in the collective agreement, there are a disproportionate number of older workers without formal educational qualifications.

As well, most of the job losses over the years have been in the unskilled job classifications and Grade 12 has now become an informal, minimum prerequisite for most jobs at GE. This has had an impact on the promotability of employees and many employees were expressing interest in upgrading their skill levels.

As a result, the joint union-management training committee recognized that there was an unmet need in this area. When the matter of basic skills training was first advanced, there was an assumption based on personal observation that there were enough employees with basic skills deficiencies to justify implementing a program.

No attempt was made to survey the workforce to determine the number of persons affected.

The Impact on Competitiveness

As indicated, management was not convinced of the need for basic skills training on the basis of any specific operational concern. However, given the company's focus on multi-skilling and improving the quality of the workforce, this initiative was accepted by management as being consistent with corporate objectives.

The Program Response

The company has a longer history than most in terms of attempting to address basic skills deficits in the workplace. In the early 1980's, GE encouraged employees wishing to complete their grade 12 through the regular school system. However, the process was rather inflexible and there was a very high dropout rate.

When the B.E.S.T. program was developed by the Ontario Federation of Labour, the union approached the company with a view to participating. GE was initially concerned with respect to the issue of paying for half the employees time while taking the program. However, it was finally accepted that B.E.S.T. was likely the most appropriate vehicle for developing basic skills in the workplace.

In 1988, GE implemented the first B.E.S.T. program in Ontario. This program is focused on workplace based skills training and is geared to raising skill levels up to about grade 10 equivilency. The recruitment effort resulted in 22 employees participating in the program, but for many employees B.E.S.T. was not entirely appropriate because of the ever increasing concern by employees on acquiring their grade 12 accreditation. Therefore, after extensive consultation with the Peterborough County Board of Education, another program (P.C.B.E.) was introduced which allowed employees to complete their formal secondary education.

When the P.C.B.E. program was introduced most of the people in the B.E.S.T. program switched over. This initially caused some concern regarding the future for B.E.S.T., but as some participants started running into trouble with the P.C.B.E. courses, they began using B.E.S.T. as a means of gaining extra tutoring. In the final analysis, everyone concerned is of the opinion that the two programs are perfectly complementary. The P.C.B.E. program offers a tangible goal for participants in terms of completing grade 12, and B.E.S.T. provides the necessary support to individuals who might otherwise dropout.

In the last four years 64 employees have completed their grade 12 and over half of these were enrolled in the B.E.S.T. program. Participants are extremely enthusiastic about both programs and see the primary benefits in terms of improved self-confidence and greater employability. Management is also very pleased with the results, and sees the programs developing further to encompass college courses.

Summary

The Peterborough facility faces ever increasing competition in the global marketplace and recognizes that its future viability depends on the skills of its workforce. The emphasis on continuous improvement of the manufacturing process is placing increased pressure on employees, and the company has demonstrated its commitment to ensuring that they have the skills necessary to succeed.

The development of the P.C.B.E. program appears to be a major factor in providing employees with the incentive to improve their basic skill levels, and the existance of the B.E.S.T. program provides a safety-net for those who might otherwise not complete the formal secondary curriculum.

Participants are extremely positive about the program and also quite clear that the company's willingness to pay for half the time involved was a critical factor in their decision to participate. Allowing employees to take part of the training on-site during normal working hours increased program accessibility while minimizing conflicts with their personal and family responsibilities. Interestingly, most thought that "knowing what they know now" in terms of the benefits experienced, they would now be prepared to participate entirely on their own time if necessary.

The total cost of supporting these basic skills programs over the years has been relatively small even when consideration is given for the paid employee time involved. The experience with these programs has contributed greatly to the creation of a positive working relationship between management and the unions involved, and has led to greater cooperation in dealing with other issues such as those relating to the environment.

Management states that the most critical challenge to improving any type of training relates to the issue of providing time-off shift. Short-term operational requirements are such that training may adversely affect productivity and the external pressures on manufacturing sometimes make it difficult for managers to take a long-term strategic view of the issue.

5

Organization Profile

1991/92 Fiscal Year

Annual Sales	$190 million
Total Number of Employees	1626
Training and Development Budget	$1.5 million
Average Per Capita Expenditure	$922
Average Annual Training Per Employee (production)	unknown
Basic Skills Program Costs	minimal
Per Cent Government Funding	minimal

Nb It should be noted that government funding supported development of the B.E.S.T. program in the first instance, and government funding supports the training of B.E.S.T. facilitators.

Inco Limited - Copper Cliff Smelter Complex

Interviews

Jose Blanco, VP HR and Administration
Carlos Landolt, Superintendent Technical Services
Bill Dopson, Superintendent Safety and Training
Tom Bayford, Superintendent Maintenance
Julian Edwards, Supervisor Control Process
Gordon Pearce, General Foreman Safety and Training
Doug Naykalyk, Supervisor Training
Reg Laurin, Trainer
Ron Babin, Trainer
Gary Patterson, Vice President USWA (local 6500)
John Clark, USWA - B.E.S.T. program coordinator

The Business Environment

Inco's Copper Cliff Smelter is one of the world's major non-ferrous smelting complexes. Located in Sudbury, Ontario the smelter produces approximately 250 million pounds of nickel and 240 million pounds of copper per year. The smelter complex is comprised of three fully integrated production departments employing over 1000 workers.

The last decade presented the company with a number of major challenges due to changes in the external environment. In particular, weak metal markets, the high cost of energy and increased environmental constraints created significant internal operating inefficiences. Long-term structural changes affecting product demand required that the smelter operate at approximately 60 per cent of installed capacity with a consequent loss of scalar economies.

The seriousness of the situation dictated that the company initiate significant changes in the way it mined and processed ore. Inco simply could not carry on business as it had for the previous fifty years.

The Corporate Response

Initially, this adverse competitive environment led Inco to focus primarily on controlling costs and making incremental technological changes in the smelting process. Production was subject to performance audits, zero-base budgeting was used to control costs, and extensive use was made of cross functional project teams comprised of both management and bargaining unit workers in the search for greater operating efficiencies.

In the final analysis, these efforts were considered insufficient to meet corporate strategic objectives and it was realized that the company's long-term survival required more fundamental changes. The decision was taken to replace existing production processes with entirely new smelting technology. The challenge facing Inco was to install the new technology while maintaining production using the existing facilities. It was recognized that the existing organizational structure and human resource management practices were not entirely compatible with the transitional or new operating environments.

Organizational restructuring resulted in far fewer job classifications and movement away from extreme job specialization. In general, there are fewer employees at each level within the organization, wider spans of control, and an emphasis on better horizontal communication. The production departments were reorganized such that operating and service groups such as the maintenance function were more fully integrated.

Over the last decade the bargaining unit has been halved to approximately 800 employees, while staff employees were reduced by 20 per cent to just over 200. At the same time, both labour productivity and output per operating period have increased significantly. Technological change has not only substantially reduced the workforce, but the ratio of skilled to unskilled labour has also increased dramatically. Unskilled labour in the smelter only represents 12 per cent of the workforce as compared to 25 per cent in 1980.

Insofar as layoffs were governed by the seniority provisions in the collective agreement, the remaining workforce is comprised of a disproportionate number of older workers whose formal education levels most likely are lower than that of the younger, laid off workers. Many of the job losses were concentrated in the non-skilled job classifications where, historically, employees with lower levels of basic skills could normally perform effectively. These employees are now having to adapt to a new operating environment and develop new skills or they face an uncertain future.

The extent of the changes at the smelter complex have required that Inco make a significant investment in the training of employees. Its commitment to functional training is demonstrated by an annual per capita expenditure that is over twice the average spent by Canadian business generally. Much of the training is directly related to conversion of the smelter technology, but it is also recognized that there is a need to increase the versatility of the workforce.

The Employment Relationship

Local 6500 of The United Steelworkers of America, which represents Inco workers, has closely watched the results of resistance to the adoption of new technology in the U.S. steel industry, and consciously adopted a more positive and receptive approach with respect to this issue.

It was generally accepted by the union that the long-term survival of the company required that new technology be used in the smelter. By taking a proactive position in this respect, it was thought that job loss could be minimized. Where job losses were unavoidable, the Local ensured that individual employees were provided with income protection and retraining opportunities.

One measure of how far this relationship has progressed over the last decade is that the last three collective agreements have been negotiated without any strikes or the need for conciliation services. In general, the labour-management relationship must be considered both positive and relatively stable.

The Basic Skills Problem

Management staff directly responsible for training, estimate that approximately 3 to 4 per cent of the workforce were unable to cope with the new operating technology specifically because of basic skills deficits, notwithstanding considerable personalized training. It was also estimated that another 20 per cent of the smelter workforce experienced some degree of difficulty in comprehending or communicating more complex written material. However, management is unsure as to the actual direct impact of this phenomenom on the organization.

The union's estimate of the number of employees with observed basic skills deficits is fairly consistent with management's. However, the union strongly feels that the hidden population is substantially greater. The union has adopted the B.E.S.T. program and recruited 38 employees interested in improving their basic skills, but it is thought that this only represents the "tip of the iceberg" because of the stigma attached to illiteracy.

The Impact on Competitiveness

Management recognizes that its direct training costs may be marginally higher because of basic skills deficiencies, but trainers report that most affected workers have been successful in training for the new smelter furnace environment and have adapted quickly to the computer controlled systems technology. It would appear

that there is no perceived operational imperative which requires an immediate, systematic response to the basic skills problem by management.

Insofar as the company continues to operate its old smelter furnaces, those employees who were unable to adapt were reassigned to that part of the operation. However, after 1994 that option will not exist and both management and labour may be forced to address the issue of what to do with this group of employees. Inco management currently offers a generous early retirement package and many of these individuals may elect to leave, but it is probable that at least some employees will require specialized basic skills training if they are to succeed in this new environment.

While acknowledging that Inco's training effort is substantial and compares favourably with other organizations, the union questioned the company's view that basic skills deficits did not have a significant negative bottom-line impact. The union cited a number of instances where continuous improvement project teams had run into problems caused by training and skills deficits. The union thinks that Inco will run into increasing problems in this respect as the workforce is further reduced. In particular, because of downsizing, the union suggests that the company will increasingly have problems filling vacancies in critical positions where individuals with basic skill deficiencies simply cannot function.

The Program Response

The company has stated that it is prepared to work with the union in terms of supporting specific basic skills training by providing facilities and other resources towards the effort. However, there is reluctance to formally accept that employees should receive any basic skills training during normal working hours paid by the employer.

In part, this response is predicated on the difficulties associated with operating in a mining environment. Any agreement to support a basic skills program in the smelter complex would likely compel the company to implement a program for mineworkers. Allowing underground mine workers to leave their shift early to take basic skills training involves considerable transport time to the surface which is both costly and disruptive to the operation. This type of logistical problem can be resolved if all of the parties were to demonstrate greater flexibility in their approaches to the issue.

Summary

Inco is operating in an extremely competitive, global market and has been forced by adverse market conditions to undergo significant changes in the way it carries on business. This has involved the adoption of new technology and the development of

new work processes requiring a more positive relationship with employees and the union.

These changes which involve greater multiskilling, improved communication skills necessary for team based, continuous improvement processes, as well as changing safety and training requirements are necessarily affected by the general quality of the workforce. To the extent that there is evidence that some employees suffer from basic skills deficiencies, it is logical to assume that the company's efforts to achieve greater competitiveness has been adversely affected by those deficits.

However, because the extent of that impact is perceived as being minimal there is little incentive for Inco to accept implementation of the B.E.S.T. program if it involves taking employees off-shift early and payment for training time. Given the significant investment made by the company in training and development, it is unlikely that Inco's response to the B.E.S.T. program is due to its cost per se.

Insofar as the union is firmly committed to the B.E.S.T. program which has institutionalized the principle of employers paying for half the training time involved, this issue has become a major obstacle between the parties in implementing a literacy program. Therefore, while the union has recruited 38 persons to the program, no training will actually begin until the issue has been resolved.

Organization Profile

1991/92 Fiscal year

Annual Sales	**not available**
Total Number of Employees	**1100**
Training and Development Budget	**$1.6 million**
Average Per Capita Expenditure	**$1454**
Average Annual Training Per Employee (production)	**80 hours**
Basic Skills Program Cost	**not applicable**
Per Cent Government Funding	**not applicable**

Saskatchewan Wheat Pool

Interviews

J. Milton Fair, C.E.O.
Frank Burdzy, Manager Resourcing and Development
Donna Barclay, Human Resources Development Consultant
Brian Waldner, Manager Construction
Bonnie Pearson, Staff Representative, GSU

The Business Environment

Saskatchewan Wheat Pool is Canada's largest agricultural cooperative with annual sales in excess of $2 billion. The Pool handles grain, farm supplies and livestock, and processes primary food products. As well, the Pool acts as an agent for the Canadian Wheat Board, which was formed in 1935 as a national grain marketing agency. In that capacity the Pool handles more than half of the Saskatchewan wheat and barley sold by the Wheat Board in Canada and abroad.

Over the last ten to fifteen years, worldwide grain production has increased at a far greater rate than demand, which has resulted in prices below the cost of production in many countries. Notwithstanding government support payments, the Pool's 60,000 members have been directly affected in terms of lower farm incomes, and the Pool has been facing declining sales revenue at a time when its need for new capital investment is increasing.

Significant changes in technology have affected the infrastructure needed to effectively serve its members. For instance, the grain handling system has had to be consolidated and modern "high-throughput" elevators have had to be built. These structures are ten times larger than their predecessors and are considerably more expensive to build.

The Pool currently employs over 2,800 employees but the adverse economic climate has resulted in more frequent and longer layoffs than is normally the case. It is within this difficult environment that management must increasingly rely on the skills, attitudes and behaviors of its employees if it is to prosper in future.

The Corporate Response

In an effort to respond to these changes the Pool is adopting many of the policies and practices of a Total Quality Management (TQM) organization, particularly with respect to increasing employee participation and multi-skilling of the workforce. Management's focus is on improving organizational effectiveness through achieving incremental improvements in the way the Pool carries on business.

Management recognizes that it must develop a competitive workforce if it is to sustain any competitive advantage in the marketplace. To support that effort the Pool has been increasing its training and development budget in spite of adverse economic conditions, although its annual per capita training expenditure is still somewhat lower than the average for Canadian business generally.

The Pool has established grade 12 as a prerequisite qualification for all new entry positions and promotions within the organization. This policy, particularly with regard to promotability, has created concern among employees and the union. This movement towards minimum skill requirements could seriously affect older workers who lack a formal education, but are otherwise qualified for more responsible positions.

The Employment Relationship

Pool employees are represented by the Grain Services Union. Overall, the labour-management relationship may be characterized as positive and stable. The parties have established a number of joint committees dealing with health and safety, as well as training and employment equity issues in an effort to develop solutions to problems which affect the organization.

Wages and benefits are competitive with similar sized companies, and there is little employee turnover or other explicit evidence of employee dissatisfaction.

The Basic Skills Problem

The issue of basic skills deficiencies in the workplace was first identified by the Pool's joint management and union employment equity committee. In particular, that committee reviewed the needs of various employee populations and concluded that those employees working in small, geographically dispersed work units had relatively poor access to educational facilities which limited their ability to upgrade skills.

With the support of management and the union, the committee contacted the Saskatchewan Federation of Labour which was in the process of completing development of its Workers Education for Skills Training program (W.E.S.T.) which was intended to address worker needs in this area.

The initial needs assessment of interested employees was carried out by the SFL in 1990. That assessment defined three categories of difficulty with basic skills. Group A included people who have great difficulty coping with reading, writing and understanding at work and at home. Group B included people who could cope somewhat, but did not feel comfortable with their skill levels. Group C included people with no obvious difficulties, but believed their technical reading and report writing skills needed improvement.

Of the 105 employees interviewed, 12 per cent identified themselves as belonging to Group A, 37 per cent Group B, and 14 per cent as Group C. A number of people in all three groups also identified a need for upgrading basic math skills and discussed the need to become "computer literate". Many employees also expressed concern that they were having some trouble dealing with new technologies in the workplace, and did not feel that their training and education opportunities were keeping up with the demands of their jobs.

These results must be considered with caution. Given the stigma associated with illiteracy, it is usually assumed that the self-identification method tends to under-represent the extent of the problem in the general population. On the other hand, it is probable that there is some degree of self-selection bias in that those persons concerned about their literacy level likely include a disproportionately large number of persons with a basic skills problem. Nonetheless, these results provided the Wheat Pool with sufficient evidence that there was an unmet need for training in this area.

While most of the Pool's various operating groups were represented in the assessment, half the persons in Groups A and B were members of the construction and repair group. Basic skills deficits in this group are a particular concern as efforts are made to upgrade technical skills and train more people in the new construction technology.

The Impact on Competitiveness

At the Wheat Pool, there is increasing emphasis on written technical information and greater expectations regarding employee participation in problem solving, and these changes are putting ever greater pressure on workers with limited basic skills.

The situation with respect to the construction and repair group presents a potentially serious problem for management because a much higher ratio of skilled to unskilled

labour is now required to construct the new concrete grain elevators. There is a concern that the lack of basic skills could adversely affect training and make the task of satisfying critical skill requirements more difficult.

Given the demands of the current work environment and the extent of the basic skills problem, management does not consider the issue to be a critical priority for the Pool. However, there is concern that as the use of new technology becomes more prevalent in the organization, the lack of basic skills could become a major constraint.

The Program Response

Pilot projects for the W.E.S.T. program were established in three locations during 1990-91. The Pool established programs directed at small groups of employees working in areas without alternative facilities. At this time approximately 18 people have participated in the program.

However, because of the geographic dispersion and small numbers of people involved, there have been some problems linking trainers with learners. This aspect of the program presents a major challenge which must be addressed if the program is to be successful in the longer term.

Program costs for that first year have been estimated at $550 for materials and transportation. The primary cost has been for employee time, which normally involves two hours per week for learners and two hours preparation time for course leaders at the Pool's expense. Total program hours for 1990-91 are estimated at 850 to 900 hours. This represents a total annual cost of less than $15,000.

It should be noted that where it has proven infeasible for the Pool to provide the employees with time off to participate in the program, the parties have made arrangements whereby employees participate totally on their own time but the employer provides some additional compensation.

Program evalutations have been very positive. Five employees have successfully completed the GED as a result of their involvement in the program. A few others have continued working and learning into a second year. Some observations from peers and supervisors indicate that participants have improved interpersonal skills, and management believes that the learning and achievement experienced through W.E.S.T. enhances self-esteem and this will have a positive impact on job performance.

Therefore, subject to ongoing evaluation, the Pool is commited to providing active support for the basic skills program. The level of support extends to giving serious consideration for continuing the program as a corporate cost even if government funding is withdrawn.

Summary

The Pool has been operating under relatively adverse market conditions for some time, and there are few signs that this environment will improve significantly in the near future. One result of this situation is that it is faced with pressure on its capital base while there is an ongoing need to invest in new infrastructure. This places increasing pressure on the Pool to improve its organizational effectiveness .

Management believes that the W.E.S.T. program has served to heighten participants' self-esteem and confidence, improved inter-personal skills, and created greater willingness to participate in corporate activities. In the long-run, these behaviors are expected to contribute to higher productivity and improved organizational effectiveness.

The positive employment relationship and cooperation with the GSU will contribute greatly to any success the W.E.S.T. program might enjoy. The degree of flexibility that the parties have shown in terms of implementing the program, particularly regarding the paid time issue, are also of critical importance. Both parties appear willing and able to make the program work to the benefit of all concerned.

Organization Profile

1991/92 Fiscal Year

Annual Sales	**$2.2 billion**
Total Number of Employees	**2859**
Training and Development Budget	**$1.092 million**
Average Per Capita Expenditures	**$382**
Average Annual Training Per Employee (production)	**56 hours**
Basic Skills Program Costs	**$3 thousand**
Per Cent Government Funding	**30 per cent**

Syncrude Canada Ltd.

Interviews

Steve Lamb, Recruitment Supervisor
Lloyd G. Campbell, Project Manager
Nancy Steel, Coordinator Adult Literacy Projects, Keyano College
Jeff Brown, Trainer Mine Mobile and program participant
Program Participants, E.R.I.C. program

The Business Environment

The Canadian "oil patch" has been suffering from an extremely rough ride over the last decade. The world price for oil is not only lower in real terms than it was in the mid-seventies but the price has fluctuated widely which has created a great deal of uncertainty in the industry. Most companies are in the process of retrenchment and are mothballing refineries and closing down retail outlets.

Based in Fort McMurray, Syncrude is the world's largest synthetic crude oil producer and one of the largest private sector employers in Alberta. The company's current costs of production are lower than the prevailing price for oil and its operations are profitable as a result. Unlike its more traditional oil industry competitors, Syncrude has been able to manage the cost side of its business without having to layoff employees.

The Corporate Response

Over the last decade, the company has countered the decline in oil prices by doubling its production to 60 million barrels while reducing cash operating costs. The key to gaining this achievement has been the company's ability to reduce operating costs by means of continuous improvement of the extraction and upgrading processes. In turn, the success of continuous improvement is entirely predicated on the efforts of Syncrude's workforce.

The company attributes much of this success to management practices which are focused on greater worker empowerment, multi-skilling and the use of self-directed, cross-functional workteams. However, these initiatives are also placing greater demands on the skills, attitudes and behaviors of employees.

For instance, workteams are increasingly responsible for hiring within the unit which requires that the workteam develop the business case to support the hiring proposal and carry out the interview and selection process. To function in this changed environment, workers have to exercise higher order problem-solving as well as effective social and communication skills.

To support its employees in coping with these changes, Syncrude's investment in human resources training and development encompasses formal programs ranging from basic literacy through to part-time graduate programs in business and engineering. The company's annual per capita training expenditure is somewhat higher than average for Canadian companies in general.

The Employment Relationship

Syncrude employees are not represented by any union. Since its inception, the company has implemented a number of progressive human resource management initiatives and it actively seeks greater levels of employee participation in the enterprise.

Wages and benefits are perceived as being very competitive and are comparable to those paid to Suncor's unionized workforce in Fort McMurray.

The Basic Skills Problem

Syncrude has provided some form of basic skills training support for over 10 years, but it was only in 1987 that events occurred which forced the company to focus on the issue and develop a more comprehensive response. The company was planning to implement a comprehensive loss management program throughout the organization. As part of the implementation plan, it was deemed necessary to ensure that supervisors were capable of effectively managing the program and a leadership development plan was created. While much of the training would involve fieldwork, some formal classroom training was envisioned.

Concerns were raised that the lack of basic skills might adversely impact on the success of training, therefore the company incorporated the Industrial Reading Test (IRT) as part of the needs assessment process. The supervisory group was tested in 1988 and 30 per cent of the group failed. It should be noted that the "pass" grade was nearly 80 per cent and it should not be assumed that those failing the test were functionally illiterate, rather these results indicated that a significant number of supervisors had difficulty comprehending relatively complex material.

In general, management estimates that 10 per cent of the workforce suffer from serious literacy deficiencies while another 20 per cent experience varying degrees of difficulty with more complex materials such as equipment maintenance manuals.

The Impact on Competitiveness

Management provided anecdotal evidence that the lack of basic skills has adversely affected functional job training, the adoption of new work methods and technology, as well as the promotion of employees.

Given the increase in demands being placed on supervisors and employees in terms of implementing new programs, the increasing focus on health and safety issues and the introduction of WHMIS, management considers it essential that all employees be fully capable of understanding relatively complex technical data.

The Program Response

After completing the needs assessment and recognizing the need to upgrade reading comprehension, Syncrude considered a number of options. Because the primary need was to improve "higher-level" skills such as problem-solving and team-building, a volunteer based program was not thought sufficient to meet the requirements. In 1988, Syncrude contracted with Keyano College in Fort McMurray to develop a program that would address the needs of supervisors. It was intended that once developed, the program would be extended to non-supervisory personnel.

During the nine months of program development, Keyano College hired a consultant, provided administrative support and managed the financial accounts. Syncrude provided the working facilities, consultative support, liaison with the supervisors and assumed all financial responsibility for the program.

The result of this collaboration is called Effective Reading in Context (E.R.I.C.), which is a comprehensive program that addresses not only reading comprehension needs, but also writing and oral communications needs. A numeracy component is currently under development. In the reading comprehension component employees learn strategies for reading, recalling and remembering informatons that they encounter on the job. The strategies are taught and practiced entirely in the context of workplace materials. After assessment, employees are placed in either a 28 or 40 hour workshop. Both programs contain the same information, but the latter provides more opportunity for practice.

The workshops are offered on half-days for three days per week and participants attend the program partly on their own time, and partly on company time depending on their shift schedule. For example, if employees are on shift for three of the days, they are given the half-day to attend. However, if they are on any of their days off during the program, they are still expected to attend the class.

Recruitment into the program has been relatively successful because literacy upgrading is presented to the employee as just one part of a multi-faceted training and development program and there is an expectation that employees will continually upgrade their skill levels. At this time, over 130 mine supervisors and non-supervisory personnel have participated in the program. However, management still considers recruitment a major problem to the extent that only half the workforce thought to have basic skills deficits have taken advantage of the program.

Summary

Notwithstanding low oil prices, Syncrude has effectively managed to secure a degree of stability and profitability uncommon in the oil industry. This is partly attributable to the now advanced state of the production technology used, the large and proximate oil reserves present, and a concentrated effort to continuously improve the oil sands extraction and refining processes.

The extent of the basic skills problem at Syncrude was largely identified as a result of a needs assessment carried out in support of a specific corporate program. The formal needs assessment process carried out in support of that program provided very clear indication that a significant number of supervisors and workers suffer from basic skills deficiencies. The perceived, potential negative impact of basic skills deficiencies was sufficient to generate a comprehensive response to the problem.

Syncrude estimates that it spends 10 per cent of its training budget on basic skills training. Management believes that improved basic skills has increased the participation and contribution of those employees involved, reduced worksite injuries, and improved the effectiveness of functional training. The Company believes that because employees continue to learn, and are able to learn, it has been able to achieve improved productivity. For Syncrude, this type of investment in human resources is something which companies simply cannot afford not to make.

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Organization Profile

1991/92 Fiscal Year

Annual Sales	not available
Total Number of Employees	4,400
Training and Development Budget	$3.173 million
Average Per Capita Expenditure	$721
Average Annual Training Per Employee (production)	56 hours
Basic Skills Program Costs	$300 thousand
Per Cent Government Funding	10 per cent